

AWARDS 2007 COMPONENTS

EXPERT'S REPORT

It's been a good year for components, with lots of new technology released. However, *Computer Shopper* also demands that products are good value, the kinds of products that you'll want to buy. With that in mind, our Best Component 2007 was easy to pick. It was the best-value product that we've reviewed all year, and also one of the most technologically advanced.

Picking the other three products was tricky, but this has been a great year for graphics cards, with DirectX 10-compatible models triggering a fundamental change in the way that graphics cards work.

As this section is about building computers, we have also selected awards for motherboards. We've picked two: the best for Intel systems, and the best for AMD systems.

Jim Martin
Review Editor



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INTEL Core 2 Duo E6750



Intel's Core 2 Duo processors are an incredible feat of engineering. As well as drawing less power and running at slower clock speeds than the previous NetBurst-based Pentium 4s, Core 2s are actually faster.

This year, Intel decided to revamp its range, upping the frontside bus (FSB) from 1,066MHz to 1,333MHz. The best processor of the lot is the Core 2 Duo E6750, the successor to the E6700 (last year's Awards winner). The faster FSB speed might not sound that exciting and, in truth, the E6750 is only a touch faster than the E6700 – although both are breathtakingly quick. What makes this particular processor an award winner, though, is its price.

Intel has slashed its processor prices so much that the speedy Core 2 Duo E6750 represents stunning value. Not only is it around £75 cheaper than the E6700, but it's also only around £17 more expensive than the budget E6320. At this price, there's nothing that comes close. AMD is still a long way off launching a processor that's as quick and as cheap.

The one downside is that the E6750 requires a motherboard that can handle a 1,333MHz FSB, so if you've already got a Core 2 PC you may not be able to upgrade. If you are looking to build a new PC from scratch, however, and you want speed and great value, there's no other choice of processor.

While the increased FSB doesn't increase performance much at the moment, it's set to have a bigger impact in future. When DDR3 RAM becomes cheaper and more popular, it will also be able to run at 1,333MHz. When this happens, the Core 2 Duo E6750

will be able to access the memory at full bandwidth, unlike older 1,066MHz processors.

Aside from the FSB increase, there's nothing architecturally different in the E6750 when compared to previous Core 2 chips. This is nothing to be ashamed of, as the Core 2 processors are well designed. Like its predecessor, the Core 2 Duo E6750 has 4MB of L2 cache that's shared between the two cores using Intel's Smart Cache. This cache is intelligently shared, so if one core is idle the busy core can use all the memory. Smart Cache also speeds up memory access by guessing which memory needs to be loaded next and fetching it before it's required. The result is that the processor cores spend less time waiting for information to come from system memory, and more time processing.

With the same 65W Thermal Design Power (TDP) as the E6700, the Core 2 Duo E6750 runs just as cool and just as efficiently as its predecessor. The Core 2 architecture is the best that you can buy. With the E6750, Intel has given the Core 2 Duo a speed boost and it has lowered only one important aspect: the price. At just over £100 this is the best-value processor that we have reviewed, and so it is our Best Component 2007.

PROCESSOR Two cores running at 2.66GHz, LGA775, 333MHz external bus (1,333MHz quad-pumped FSB), 4MB L2 cache
PART CODE BX80557 **LATEST PRICE** £117 from www.lambdatek.com **DETAILS** www.intel.com **FULL REVIEW** Oct 2007



EVGA 8800GTS ACS3

EVGA's 8800GTS ACS3 is a stunning graphics card that will power through old and modern games at high detail settings.

Throwing the old pixel-pipeline architecture out of the window, Nvidia's new stream processors can be used as shaders or to process vertices, depending on the scene. The result is that no matter what's being drawn, the graphics card has plenty of balanced power.

The 8800GTS ACS3 is overclocked, so it's nearly as fast as the expensive 8800GTX. We appreciate that £220 isn't exactly cheap, but if you don't want to pay as much as £400, then the 8800GTS ACS3 is the graphics card for you.



GRAPHICS CARD Nvidia GeForce 8800GTS chipset, 590MHz core speed, 320MB DDR3 memory running at 920MHz (1.84MHz effective), 96 stream processors running at 1.45GHz, PCI-E x16 interface **PART CODE** 320-P2-E817-AR **LATEST PRICE** £220 from www.scan.co.uk **DETAILS** www.evga.com **FULL REVIEW** Oct 2007



ABIT IP35 Pro

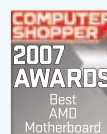
Abit's IP35 Pro is a great motherboard if you want to build a powerful Core Duo-based PC. It's easy to set up and has power and reset buttons onboard, so you don't even need to plug it into your case to test it. It supports AMD's CrossFire technology, so you can run two graphics cards, and the 2D performance was excellent, too.

With six SATA/300 ports, RAID support, a good range of PCI-E and PCI slots and plenty of USB2 ports, you've got room for all the peripherals that you'll ever need.

With great performance and a good price, this motherboard is the perfect companion to our Best Component 2007, Intel's Core 2 Duo E6750. It is a winning combination.



INTEL MOTHERBOARD LGA775 socket, Intel P35 chipset, 4x DDR2 slots, 2x PCI-E x16 slots, 1x PCI-E x1 slot, 3x PCI slots, 1x IDE port, 6x SATA/300 ports **PART CODE** IP35PUCD000251 **LATEST PRICE** £122 from www.yoyotech.co.uk **DETAILS** www.abit.com.tw **FULL REVIEW** Nov 2007



MSI K9AGM2

AMD has been having a tough time competing with Intel on the processor front, but MSI's K9AGM2 shows that AMD still knows how to build a budget chipset. This board uses the 690G chipset and has an onboard HDMI output, so it's easy to connect to a modern LCD TV. While the onboard X1250 graphics aren't powerful enough for the latest games, there's a PCI-E x16 slot so you can install a faster graphics card.

The K9AGM2 really won us over with its price. For less than £40, it's the perfect starting place for building a decent budget PC or media centre. It is this great balance of price and excellent performance that makes it the best AMD motherboard.



AMD MOTHERBOARD AMD 690G chipset, supports AMD Socket AM2 processors, 1x PCI slot, 1x PCI-E x1 slot, 1x PCI-E x16 slot, 2x DIMM slots, 1x Gigabit Ethernet, 4x USB2 ports **PART CODE** K9AGM2 **LATEST PRICE** £37 from www.scan.co.uk **DETAILS** www.msi.com.tw **FULL REVIEW** Jul 2007

AOPEN MP965-DR

★★★★★

£296 inc VAT

If you're looking for a tiny barebones PC to use as a media centre, you should make the MP965-DR your first choice. AOpen has done itself proud with its latest mini PC, getting just about everything right.

Although it is hard to tell from the photo, this is one of the smallest PCs you're likely to see, measuring just 165x165x60mm, which is barely larger than a Mac Mini. Finished in black brushed aluminium, it should blend in with the rest of your hi-fi equipment or sit comfortably next to your LCD TV.

It's good to see a built-in infrared receiver rather than an ugly external box, which uses up a USB port. A Windows Vista-certified remote control is included, too, so all you need to do is install Vista Home Premium and you can control Media Center from your sofa.

On the back panel, there is a DVI port. This is not ideal, but there is a converter to HDMI in the box. A TV-out port can be used with a bundled cable, which converts to component, S-video and composite video.

For audio, three mini-jack sockets provide analogue 5.1-channel sound, but a converter changes one of these into a Toslink optical S/PDIF.

Despite the fact that this PC has such tiny dimensions, everything you need is crammed inside. There is a dual-layer DVD writer, a Socket P motherboard supporting 800MHz FSB mobile Core 2 Duos and Core 2 Extreme processors, two SoDIMM slots for up to 4GB of DDR2 memory, and space for a 2½in hard disk.

All these components are for notebooks to reduce size, but they cost more than the desktop PC equivalents. The DVD writer is included in the price, but you can expect to pay £55 for 2GB of 667MHz DDR II memory, £155 for a 2GHz Core 2 Duo T7500, and £60 for a 160GB Hitachi Travelstar 5K160 hard disk – the components that we used to test the MP965-DR. Performance was what we'd expect for a Core 2 Duo T7500, but it was a shame that the GMA 3100 graphics refused to run Call of Duty 2 at all.



Installing the components is fairly easy once you have removed the top cover and four screws that hold the DVD writer cage in place. The only tricky part was fitting the lowermost memory stick, as it fouled a connector on the front panel. If you're handy with a screwdriver, you should be up and running within 30 minutes.

There are two mini PCI-E slots for a wireless network card and a TV tuner, but you could use the two rear USB2 ports for external versions, or use the Ethernet port for wired networking. Then you could plug a USB keyboard and mouse into the front USB2 ports when necessary.

While the MP965-DR isn't the cheapest way to build a media centre PC, it is one of the quietest and most elegant. Because of the Core 2 Duo and Extreme support, you should be able to tailor the PC to the level of performance you need. Thanks to the bundled remote and all the audio and video connections, it's a great choice even at this price.

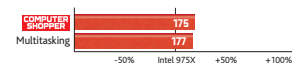
Jim Martin

SUMMARY

- ✓ Takes up very little room
- ✓ Quiet; ideal as a media centre
- ✗ Requires expensive components

BAREBONES PC Intel 965GM chipset, supports Intel Socket P processors, 4x USB2, FireWire and Gigabit Ethernet ports, DVI and TV outputs, 2x SoDIMM slots, 1x 2½in hard disk bay, Intel GMA 3100 graphics, DVD +/- RW +/- DL notebook drive, 90W power supply
PART CODE 91.MA601.B3E0
SUPPLIER www.lambda-tek.com
DETAILS www.aopen.nl

PERFORMANCE (see page 62)



GIGABYTE 3D Rocket II

★★★★★

£24 inc VAT

The 3D Rocket II is a huge cooler, measuring 175mm tall and weighing 640g. With blue plastic fins and blue LEDs, it's clearly aimed at enthusiasts. There are two fans: a 92mm one at the top and a smaller one at the bottom. They blow in opposite directions – the top one upwards and the bottom one downwards – to dissipate heat as effectively as possible. Four heatpipes take heat away from the copper base and scores of aluminium fins ensure that surface area is massive.

Installing the cooler on an LGA775 motherboard involves attaching a plastic base, which has to be screwed on from the back of the board, so install it before fitting the motherboard into your case. On AMD AM2 or Socket 939 motherboards, it's a simple case of using the existing clips. A 3½in panel is included with a dial to alter the speed from 1,500–3,000rpm, but this can be mounted at the rear of your case if needed.

We tested using a Core 2 Duo E6300 (1.86GHz). Intel's reference cooler managed 41°C when idle and 45°C under load. At the minimum speed, the 3D Rocket II managed 35°C and 42°C respectively, and 33°C and 41°C at the full – and noisiest – speed.

If you can live with the looks, the 3D Rocket is good value.

Jim Martin



SUMMARY

- ✓ Whisper-quiet at minimum speed
- ✓ Manual speed control
- ✗ Modest temperature reduction

PROCESSOR COOLER Supports Intel LGA775 processors, AMD Socket AM2 + 939, 92mm fan, 1,500–3,000 spin speed, 16–34dBA operating volume
PART CODE GH-PCU23-VE
SUPPLIER www.kikatek.com
DETAILS http://uk.giga-byte.com

AKASA Revo

★★★★

£35 inc VAT

The Revo is the first processor cooler of its kind. It uses a thermodynamic 'bubble pump', which is similar to heatpipe designs. The difference is that it uses a dual-component fluid where one type boils at a low temperature, creating bubbles. As the system is hermetically sealed, the bubbles cannot escape and so they force the rest of the fluid to be transported along the pipe to the aluminium radiator. Here, it's cooled by a 92mm fan, which causes the boiling fluid to cool down too, eliminating the bubbles. Both fluids then return to the reservoir at the base of the cooler.

Not only is the fan extremely quiet, but it is also angled so that air is also blown on to nearby motherboard components, thereby cooling them. Furthermore, no tools are needed to install the Revo, and you don't need to fit anything on to the back of the motherboard.

While it is quiet and light at 330g, the Revo proved no more effective at cooling than the cheaper 3D Rocket II. When idle, our Core 2 Duo E6300 registered 36°C, and when under load 43°C.

If you're after a cooler you can fit without tools in five minutes then the Revo won't disappoint, but there are cheaper options.

Jim Martin



SUMMARY

- ✓ Easy to fit
- ✓ Quiet running
- ✗ Relatively expensive

PROCESSOR COOLER Supports Intel LGA775 processors, AMD Socket AM2, 939, 754, 92mm fan, 600–2,200 spin speed, 17–26dBA operating volume
PART CODE AK-925
SUPPLIER www.scan.co.uk
DETAILS www.akasa.co.uk

ECS G31T-M

★★★★★

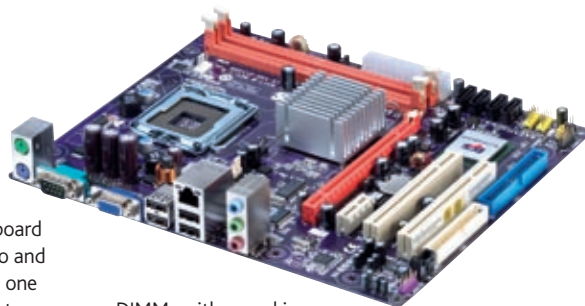
£43 inc VAT

If you're looking for a low-cost motherboard that supports the latest Intel Core 2 Duo and Core 2 Quad processors, the G31T-M is one of the most affordable around. It supports processors with a FSB of 1,333MHz and, although you could install any of the range of 1,066MHz processors and overclock them, there are limited options for doing this in the BIOS.

Its microATX shape makes the ECS ideal for mini PCs, but the absence of an HDMI

output reduces its appeal as the basis of a media centre. It has two DDR2 memory slots supporting up to 4GB of 800MHz RAM, four SATA/300 ports – without RAID support – and two PCI expansion slots. There is also a PCI-E x1 slot and a x16 full-length slot for a PCI-E graphics card.

Many graphics cards will extend past the end of the motherboard, though, as it is only 20cm wide. Long cards will sit close to the memory sockets, too, so you might not be able to add or remove



DIMMs with a card in place. However, since the G31T-M uses Intel's new G31 chipset, there's integrated G3100 graphics anyway. These are fine for 2D applications, but despite DirectX 9.0c support they wouldn't run our Call of Duty 2 benchmark, so don't expect to be able to play games.

There are no fans on the motherboard so it runs silently, which is an advantage. Rear-panel connections include four USB2 ports, 10/100 Ethernet and, oddly, a serial port. There's no FireWire and no TV-out, and D-sub is the only video connection. Accessories in the box are limited to a SATA cable and an EIDE cable.

If you don't need RAID, FireWire or an HDMI output, the G31T-M is good value. It isn't the ideal media centre motherboard, though.

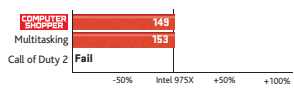
Jim Martin

SUMMARY

- ✓ Affordable
- ✓ No fans
- ✗ Only an analogue video output

INTEL MOTHERBOARD Intel G31 chipset, supports Intel LGA775 processors, 2x PCI, 1x PCI-E x16, 1x PCI-E x1, 2x DIMM slots, 4x USB2, serial, D-sub
PART CODE 89-206-V39100
SUPPLIER www.morecomputers.com
DETAILS www.ecs.com.tw

PERFORMANCE (see page 62)



ANTEC Sonata III

★★★★★

£71 inc VAT

The Sonata III is the third version of Antec's mid-range quiet PC case. Although it isn't very cheap, the price includes a 500W power supply, so it is good value.

The top half of the lockable front panel hinges open to reveal three 5¼in bays and two 3½in bays. All are quick-release slots, with the two smaller bays sharing a slide-out cage of their own. Below these, on the inside, are four slide-out hard disk trays. Each is fitted with four rubber grommets to dampen noise and vibrations. The system works to an extent, but disk-seek noises are still audible.

Strangely, there's no fan at the front, but you get a removable dust filter, which will need to be cleaned regularly. At the rear there is a three-speed 120mm fan, which is very quiet on the slowest setting. With the near-silent power supply fan, the Sonata III lives up to expectations where noise is concerned.

The seven rear expansion slots aren't quick-release,



instead requiring a Philips screwdriver. Only the left side panel is removable. The rest of the piano-black panelling, along with the motherboard tray, is fixed in place. This makes it awkward to hide cables neatly behind the hard disks, but at least all the cables are

long enough.

With the front door closed, you can still use the two USB2 ports and eSATA port. There are also headphone and microphone sockets that conform to the new High Definition Audio standard.

The power supply has six standard four-pin power connectors, four SATA plugs and two PCI-E connectors for graphics cards. For the price, it's a decent supply. As the rear fan uses a standard four-pin connector, you won't need a spare fan header on the motherboard.

While we'd have preferred a front fan to increase airflow, the Sonata III is well priced and runs quietly.

Jim Martin

SUMMARY

- ✓ Runs very quietly
- ✓ 500W power supply included
- ✗ No front fan

SILENT PC CASE Takes ATX and Mini-ATX motherboards, 3x external 5¼in drive bay, 6x 3½in drive bays (4x internal, 2x external), 2x USB2 ports, eSATA port, 206x463x425mm, 9.1kg

CHOOSING AN...

Intel Motherboard

Follow the steps to find your ideal specs

MOTHERBOARD CHIPSET: Intel 965

ONBOARD GRAPHICS: Yes

GRAPHICS CARD SLOT: One PCI-E x16

Recommended minimum in grey

1 A basic motherboard with the above specifications costs around £65. It will support the Core 2 Duo range of dual-core processors. As it has onboard graphics, you can use it for standard Windows applications without having to buy a dedicated graphics card.

2 If you want to play games, a PCI-E x16 slot will let you install a dedicated graphics card. If you want to use dual graphics, you have two choices. ATI's CrossFire requires a motherboard with two PCI-E x16 slots and an Intel 965, 975 or X3x, P3x, G3x or Q3x series chipset. SLI requires two PCI-E x16 slots and an Nvidia nForce 4 or higher chipset.

3 If you want to build a Media Center PC, look for Viiv compatibility, as this will provide a quick-resume-from-standby feature, which makes your PC wake up much faster. You may also want to get a microATX motherboard, as this will let you build your PC in a smaller case.

4 Choose a motherboard that takes the processor you want to use. If you want Core 2 Duo, or will upgrade to it later, you'll need a motherboard that supports it. Nvidia's 600i series does, as does Intel's 965, 975, X3x, P3x, G3x or Q3x series. Check the manufacturer's website before you buy, though, as not all 975 motherboards support Core 2 Duo.

If you want to use a mobile processor to build a smaller, quieter PC, then you'll need a Socket P motherboard. Check for compatibility with the mobile version of Core 2 Duo if you think you'll want to make this upgrade.

5 If you're installing lots of expansion cards, look for a motherboard with plenty of PCI and PCI-E x1 slots. If you're going to install a lot of storage in your PC, a motherboard with plenty of SATA ports is essential. Ideally, it should be one that supports RAID, as this gives you a simple way of improving performance or protecting your data.